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(54) **Epoxy resin compositions for fiber-reinforced composite materials, preregs and fiber-reinforced composite materials**

(57) Epoxy resin compositions for fiber-reinforced composite materials comprise at least the constituents [A] an epoxy resin comprising 70 parts by weight or more, per 100 parts by weight of the epoxy resin, of a bi-functional epoxy resin, [B] fine particles comprising a

rubber phase and substantially insoluble in epoxy resins and [C] a curing agent. The compositions are suitable for preregs for production of fiber-reinforced composite materials having high impact resistance and heat resistance.

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# EUROPEAN SEARCH REPORT

Application Number  
EP 96 30 3252

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D,X	DATABASE WPI Section Ch, Week 8217 Derwent Publications Ltd., London, GB; Class A21, AN 82-34462E XP002072690 & JP 57 049646 A (TOHO BESLON CO LTD) * abstract *	1	C08L63/00 C08L21/00 C08J5/24
X	& PATENT ABSTRACTS OF JAPAN vol. 006, no. 122 (C-112) & JP 57 049646 A (TOHO RAYON CO LTD), 23 March 1982 * abstract *	1	
X	--- EP 0 545 640 A (TONEN CORPORATION) 9 June 1993 * page 3, line 30-35; example 6 *	1-7, 12-15, 20-23	
Y	* page 4, line 20-30 *	8-11	
Y	--- EP 0 336 732 A (MINNESOTA MINING AND MANUFACTURING COMPANY) 11 October 1989 * page 3, line 40 - page 4, line 10; claims 1,3 * -----	8-11	TECHNICAL FIELDS SEARCHED (Int.Cl.6) C08L C08J
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 27 July 1998	Examiner Devriese, K
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

EPO FORM 1803 03 82 (P0401)



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### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid.  
namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions.

namely:

See sheet -B-

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid.  
namely claims:
- ☒ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.

namely claims: mentioned in item 1.



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**LACK OF UNITY OF INVENTION**  
**SHEET B**

Application Number  
EP 96 30 3252

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-15, 20-23

Epoxy resin compositions, prepregs and composite materials,  
comprising fine particles which comprise a rubber phase.

2. Claims: 16-23

Epoxy resin compositions, prepregs and composite materials,  
comprising a thermoplastic resin.